



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

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FWS/EC-04-021

JAN 20 2004

Robert Schneider, Chair  
California Regional Water Quality Control Board  
Central Valley Region  
11020 Sun Center Drive # 200  
Rancho Cordova, CA 95670-6114

Subject: Comments on the Basin Plan Amendment for the Control of Salt and Boron  
Discharges into the San Joaquin River Staff Report and Workshop of  
December 5, 2003

Dear Mr. Schneider:

On December 5, 2003, the Central Valley Regional Water Quality Control Board (Regional Board) held a workshop on a Basin Plan Amendment for the Control of Salt and Boron Discharges into the San Joaquin River. The U.S. Fish and Wildlife Service (Service) offers the following as comments on the Regional Board's continuing effort to address the salinity and boron problems in the lower San Joaquin River. The Service has previously commented on the Regional Board's preliminary staff report on July 21, 2000, and during the most recent workshop on December 5, 2003.

The Service does not agree with inclusion of wetland discharges as one of the sources of the salinity problem in the San Joaquin Valley. Historically, the wetlands gathered flood and rainwater and slowly released them back to the river. The remaining wetlands in the valley are a natural part of the ecosystem and are managed, under the severe constraints of limited water quantity, less than ideal quality, and significantly altered hydrology, as near to the natural flooding cycles as possible in this highly altered and effluent dominated system. These remnant wetland discharges, which contribute only 9 percent of the salt load to the river according to the staff report, should be considered more as background than a regulated discharge in the context of total maximum daily loads.



Wetlands are substantially different from agriculture in purpose, management practices, and most importantly in their effects on the aquatic contamination problems in the Central Valley. In the last 150 years over 90 percent of the wetlands in the Central Valley have been diked, drained, and converted to agricultural and urban uses. Throughout the Central Valley, the intensive management conducted on these remnant wetlands is essentially mitigation for the massive loss of wetlands that has taken place over the course of time. Wetlands are managed to accomplish mandated habitat and resource conservation, restoration, and protection. Water is applied and withdrawn in a manner that will suppress invasive non-native plant species and promote the growth of native wetland and moist-soil species that are important as forage for waterfowl and an incredible diversity of other wetland-dependent wildlife species. The remaining 5 to 10 percent of the wetlands are expected to sustain the maintenance and restoration of resident and migratory birds and other wildlife of regional and national significance that depend on this habitat. Up to one million waterfowl, over one-quarter million shorebirds, and 20 threatened and endangered species use these important habitats. To include these wetlands collectively with other dischargers in the valley as part of the problem is an inaccurate description of the functions of wetlands.

Water allotments for wetlands within the San Joaquin Basin total approximately 265,000 acre-feet; however, water allotments for agricultural use total roughly three to four million acre-feet. The typical location of Central Valley wetlands is at the “bottom of the pipe” leading to management of wetlands with water discharged from municipal and agricultural sources. The net effect of wetlands is to serve as contaminant buffers that, in general, ameliorate contaminant problems in waters of the Central Valley.

The implementation of the Grassland Bypass Project (GBP) and the Central Valley Project Improvement Act (CVPIA) has provided the San Luis National Wildlife Refuge Complex (San Luis NWRC) and other wetlands access to increased water supplies that are of higher quality. This has improved the overall water quality of wetland discharges from the San Luis NWRC and other wetlands in recent years. The Regional Board staff report notes that water quality data collected during water years 1986 to 1998 indicate that the non-irrigation season salinity objective of 1,000  $\mu\text{S}/\text{cm}$  (applies 1 September – 31 March), was exceeded 11 percent of the time and the irrigation season salinity objective of 700  $\mu\text{S}/\text{cm}$  (applies 1 April – 31 August) was exceeded 49 percent of the time at Vernalis; however, the most recent data in the report (1994 to 1998) are significant (see Appendix 1, Figure 1-3: EC for LSJR at Vernalis, 1986-1998). Since the CVPIA and GBP have been implemented the exceedence rates appear to be significantly lower. Also, the report does not consider data from 1999 to 2002 which would likely show a continuing lower trend of exceedences. This improvement of water quality since 1998 should be quantified and more prominently noted by the Regional Board.

Although the quality of water delivered to wetlands in the Grassland sub-area is better, there is much room for improvement. Monitoring of the three primary sources of water for the San Luis NWRC in 2002 show that electrical conductivity (EC) readings average 852  $\mu\text{S}/\text{cm}$ , C-canal; 1,469  $\mu\text{S}/\text{cm}$ , San Luis Canal; and 1,395  $\mu\text{S}/\text{cm}$ , Santa Fe Canal (range for all sources, 616 - 3,710  $\mu\text{S}/\text{cm}$ ). Thus, source water to the San Luis NWRC is already above the San Joaquin

River standards at Vernalis (700  $\mu\text{S}/\text{cm}$  summer, 1,000  $\mu\text{S}/\text{cm}$  winter). The highest EC readings for supply water occur during February, March, and April. During the December 5, 2003 workshop one east side San Joaquin River discharger recommended using EC measurements as the regulating tool rather than allocating loads to each discharger. Considering the above data this tool would not be practical for those dischargers that have no control over the quality of their supply water. As with salt, boron in San Luis NWRC supply water is also above San Joaquin River standards. Boron concentrations from the three water sources average 0.335, 1.12, and 1.54  $\mu\text{g}/\text{L}$  (range 0.31 – 2.2  $\mu\text{g}/\text{L}$ ).

The Service recognizes that many wetlands in the San Joaquin Valley are intimately connected to their irrigated neighbors. To that end, the Service and other wetland managers are working with Lawrence Berkeley Laboratories on real-time management to identify operational changes that can be made to assist the Regional Board and others in improving the water quality of the San Joaquin River. It is too early in this process to know how any changes in management regimes will affect the salt and boron objectives for the river or the impacts to management objectives of the wetlands. The Service is willing to consider these changes so long as it does not impact the short and long-term goals of the San Luis NWRC.

Some attention has been focused on the concept of holding wetland water until it can be released during a period of time when the assimilative capacity of the River is higher. This concept is essentially identical to the focus of a Bureau of Reclamation study conducted in the late 1980's, during a drought period. This "off-stream storage" study, or experiment, was conducted in the North Grasslands. That effort resulted in three negative results: 1) The salts were significantly concentrated while the water was being held, with some areas actually experiencing salts encrusting on the surface of the soil; 2) waterfowl were attracted to nest in these areas due to the water being held into the late spring, and when the areas were finally drawn down, waterfowl broods were left high and dry; and, 3) the late drawdown and concentration of salts damaged waterfowl food plant production. It should be noted that CVPIA, Level 4 water supplies delivered to wetlands in late spring and early summer are used for brood ponds and wetting soil for certain wetlands plants. For the most part this water is not discharged from the wetlands.

The Regional Board staff report discusses the management options of improved water supply quality and increased flows from upstream to improve the water quality in the lower San Joaquin River. The Service recognizes these options as being critical to reaching the salt and boron objectives in the river and will support the Regional Board and others in efforts to identify ways to make these options viable. These options are also critical for meeting dissolved oxygen standards in the Stockton ship channel and flow needs for salmonids.


The Grassland sub-area imports 423,000 tons of salt from the DMC and discharges 400,000 tons while the Northwest Side sub-area imports 90,000 tons from the DMC and discharges 330,000 tons of salt (see Appendix 1, Table 3-2: DMC Salt Contributions by Sub-area 1977-1997). We assume the increase in salt load discharged by the Northwest Side sub-area is from other water supply sources such as ground water use or diversions from the lower San Joaquin River. The Regional Board staff report gives credit to these two sub-areas for the salt load in the DMC over which they have no control. The Northwest sub-area also receives credit for the salt

load in water diversions from the lower San Joaquin River since this water is impaired from discharges upstream. A similar additional credit should be given to some water users in the Grassland sub-area since supply waters are often commingled with other discharges resulting in supply water that is already above San Joaquin River standards (see discussion above).

In summary, wetland discharges should be considered more as background than a regulated discharge under a total maximum daily load process. Short of this, wetlands should be given additional salt load credits due to significant upstream salt loads causing elevated concentrations in some wetland supply waters. This issue can be addressed during consideration of options for managed wetlands under the irrigated lands waiver currently being implemented by the Regional Board. The Service and other wetland managers are working on real-time management of water discharges to identify operational changes that can be made to improve the water quality of wetland discharges to the San Joaquin River and still achieve the short and long-term goals of the San Luis NWRC and its resources.

Thank you for the opportunity to cooperate with you in your efforts to improve water quality in the Central Valley of California. The Service will continue to work with the Regional Board to resolve the water quality issues in the San Joaquin Valley. If you have any questions, please contact Mr. Tom Maurer of my Environmental Contaminants Division at (916) 414-6594 or Ms. Kim Forrest, Manager, San Luis National Wildlife Refuge Complex at (209) 826-3508.

Sincerely,



*for* Wayne S. White  
Field Supervisor

cc:

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Manager, California/Nevada Operations Office, Sacramento, CA

Manager, Grassland Water District, Los Banos, CA

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Total Maximum Daily Load Coordinator, State Water Resources Control Board, Sacramento, CA